

106TH CONGRESS
1ST SESSION

S. 1066

To amend the National Agricultural Research, Extension, and Teaching Policy Act of 1977 to encourage the use of and research into agricultural best practices to improve the environment, and for other purposes.

IN THE SENATE OF THE UNITED STATES

MAY 18 (legislative day, MAY 14), 1999

Mr. ROBERTS (for himself, Mr. MURKOWSKI, Mr. GRAMS, Mr. HAGEL, and Mr. CRAIG) introduced the following bill; which was read twice and referred to the Committee on Agriculture, Nutrition, and Forestry

A BILL

To amend the National Agricultural Research, Extension, and Teaching Policy Act of 1977 to encourage the use of and research into agricultural best practices to improve the environment, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Carbon Cycle and Ag-
5 ricultural Best Practices Research Act”.

6 **SEC. 2. FINDINGS.**

7 Congress finds that—

1 (1) agricultural producers in the United
2 States—

3 (A) have, in good faith, participated in
4 mandatory and voluntary conservation pro-
5 grams, the successes of which are unseen by the
6 general public, to preserve natural resources;
7 and

8 (B) have a personal stake in ensuring that
9 the air, water, and soil of the United States are
10 productive since agricultural productivity di-
11 rectly affects—

12 (i) the economic success of agricul-
13 tural producers; and

14 (ii) the production of food and fiber
15 for developing and developed nations;

16 (2) in addition to providing food and fiber, agri-
17 culture serves an environmental role by providing
18 benefits to air, soil, and water through agricultural
19 best practices;

20 (3) those conservation programs and Federal
21 land provide the United States with an enormous
22 potential to increase the quantity of carbon stored in
23 agricultural land and commodities through the car-
24 bon cycle;

1 (4) according to the Climate Modeling and
2 Diagnostics Laboratory of the National Oceanic and
3 Atmospheric Administration, North American soils,
4 crops, rangelands, and forests absorbed an equiva-
5 lent quantity of carbon dioxide emitted from fossil
6 fuel combustion as part of the natural carbon cycle
7 from 1988 through 1992;

8 (5) the estimated quantity of carbon stored in
9 world soils is more than twice the carbon in living
10 vegetation or in the atmosphere;

11 (6) agricultural best practices can increase the
12 quantity of carbon stored in farm soils, crops, and
13 rangeland;

14 (7) although there is a tremendous quantity of
15 carbon stored in soil that supports agricultural oper-
16 ations in the United States, the quantity of carbon
17 stored in soil may be increased by using a strategy
18 that would benefit the environment without imple-
19 menting a United Nations-sponsored climate change
20 protocol or treaty;

21 (8) Federal research is needed to identify—

22 (A) the agricultural best practices that
23 supplement the natural carbon cycle; and

1 (B) Federal conservation programs that
2 can be altered to increase the environmental
3 benefits provided by the natural carbon cycle;

4 (9) increasing soil organic carbon is widely rec-
5 ognized as a means of increasing agricultural pro-
6 duction and meeting the growing domestic and inter-
7 national food consumption needs with a positive en-
8 vironmental benefit;

9 (10) agricultural best practices include the
10 more efficient use of agriculture inputs and equip-
11 ment; and

12 (11) tax credits should be offered in order to
13 facilitate the widespread use of more efficient agri-
14 culture inputs and equipment and to increase envi-
15 ronmental benefits.

16 **SEC. 3. AGRICULTURAL BEST PRACTICES.**

17 Title XIV of the National Agricultural Research, Ex-
18 tension, and Teaching Policy Act of 1977 (7 U.S.C. 3101
19 et seq.) is amended by adding at the end the following:

20 **“Subtitle N—Carbon Cycle and**
21 **Agricultural Best Practices**

22 **“SEC. 1490. DEFINITIONS.**

23 “In this subtitle:

24 “(1) AGRICULTURAL BEST PRACTICE.—The
25 term ‘agricultural best practice’ means a voluntary

1 practice used by 1 or more agricultural producers to
 2 manage a farm or ranch that has a beneficial or
 3 minimal impact on the environment, including—

4 “(A) crop residue management;

5 “(B) soil erosion management;

6 “(C) nutrient management;

7 “(D) remote sensing;

8 “(E) precision agriculture;

9 “(F) integrated pest management;

10 “(G) animal waste management;

11 “(H) cover crop management;

12 “(I) water quality and utilization manage-
 13 ment;

14 “(J) grazing and range management;

15 “(K) wetland management;

16 “(L) buffer strip use; and

17 “(M) tree planting.

18 “(2) CONSERVATION PROGRAM.—The term
 19 ‘conservation program’ means a program established
 20 under—

21 “(A) subtitle D of title XII of the Food Se-
 22 curity Act of 1985 (16 U.S.C. 3830 et seq.);

23 “(B) section 401 or 402 of the Agricul-
 24 tural Credit Act of 1978 (16 U.S.C. 2201,
 25 2202);

1 “(C) section 3 or 8 of the Watershed Pro-
2 tection and Flood Prevention Act (16 U.S.C.
3 1003, 1006a); or

4 “(D) any other provision of law that au-
5 thorizes the Secretary to make payments or
6 provide other assistance to agricultural pro-
7 ducers to promote conservation.

8 **“SEC. 1491. CARBON CYCLE AND AGRICULTURAL BEST**
9 **PRACTICES RESEARCH.**

10 “(a) IN GENERAL.—The Department of Agriculture
11 shall be the lead agency with respect to any agricultural
12 soil carbon research conducted by the Federal Govern-
13 ment.

14 “(b) RESEARCH SERVICES.—

15 “(1) AGRICULTURAL RESEARCH SERVICE.—The
16 Secretary, acting through the Agricultural Research
17 Service, shall collaborate with other Federal agencies
18 to develop data and conduct research addressing soil
19 carbon balance and storage, making special efforts
20 to—

21 “(A) determine the effects of management
22 and conservation on carbon storage in cropland
23 and grazing land;

1 “(B) evaluate the long-term impact of till-
2 age and residue management systems on the
3 accumulation of organic carbon;

4 “(C) study the transfer of organic carbon
5 to soil; and

6 “(D) study carbon storage of commodities.

7 “(2) NATURAL RESOURCES CONSERVATION
8 SERVICE.—

9 “(A) RESEARCH MISSIONS.—The research
10 missions of the Secretary, acting through the
11 Natural Resources Conservation Service,
12 include—

13 “(i) the development of a soil carbon
14 database to—

15 “(I) provide online access to in-
16 formation about soil carbon potential
17 in a format that facilitates the use of
18 the database in making land manage-
19 ment decisions; and

20 “(II) allow additional and more
21 refined data to be linked to similar
22 databases containing information on
23 forests and rangeland;

24 “(ii) the conversion to an electronic
25 format and linkage to the national soil

1 database described in clause (i) of county-
2 level soil surveys and State-level soil maps;

3 “(iii) updating of State-level soil
4 maps;

5 “(iv) the linkage, for information pur-
6 poses only, of soil information to other soil
7 and land use databases; and

8 “(v) the completion of evaluations,
9 such as field validation and calibration, of
10 modeling, remote sensing, and statistical
11 inventory approaches to carbon stock as-
12 sessments related to land management
13 practices and agronomic systems at the
14 field, regional, and national levels.

15 “(B) UNIT OF INFORMATION.—The Sec-
16 retary, acting through the Natural Resources
17 Conservation Service, shall disseminate a na-
18 tional basic unit of information for an assess-
19 ment of the carbon storage potential of soils in
20 the United States.

21 “(3) ECONOMIC RESEARCH SERVICE REPORT.—
22 Not later than 1 year after the date of enactment
23 of this section, the Secretary, acting through the
24 Economic Research Service, shall submit to the
25 Committee on Agriculture of the House of Rep-

1 representatives and the Committee on Agriculture, Nu-
2 trition, and Forestry of the Senate a report that
3 analyzes the impact of the financial health of the
4 farm economy of the United States under the Kyoto
5 Protocol and other international agreements under
6 the Framework Convention on Climate Change—

7 “(A) with and without market mechanisms
8 (including whether the mechanisms are permits
9 for emissions and whether the permits are
10 issued by allocation, auction, or otherwise);

11 “(B) with and without the participation of
12 developing countries;

13 “(C) with and without carbon sinks; and

14 “(D) with respect to the imposition of tra-
15 ditional command and control measures.

16 “(c) CONSORTIA.—

17 “(1) IN GENERAL.—The Secretary may des-
18 ignate not more than 2 carbon cycle and agricultural
19 best practices research consortia.

20 “(2) SELECTION.—The consortia designated by
21 the Secretary shall be selected in a competitive man-
22 ner by the Cooperative State Research, Education,
23 and Extension Service.

24 “(3) DUTIES.—The consortia shall—

1 “(A) identify, develop, and evaluate agri-
2 cultural best practices using partnerships com-
3 posed of Federal, State, or private entities and
4 the Department of Agriculture, including the
5 Agricultural Research Service;

6 “(B) develop necessary computer models to
7 predict and assess the carbon cycle, as well as
8 other priorities requested by the Secretary and
9 the heads of other Federal agencies;

10 “(C) estimate and develop mechanisms to
11 measure carbon levels made available as a re-
12 sult of voluntary Federal conservation pro-
13 grams, private and Federal forests, and other
14 land uses; and

15 “(D) develop outreach programs, in coordi-
16 nation with extension services, to share infor-
17 mation on carbon cycle and agricultural best
18 practices that is useful to agricultural pro-
19 ducers.

20 “(4) CONSORTIA PARTICIPANTS.—The partici-
21 pants in the consortia may include—

22 “(A) land-grant colleges and universities;

23 “(B) State geological surveys;

24 “(C) research centers of the National Aer-
25 onautics and Space Administration;

1 “(D) other Federal agencies;

2 “(E) representatives of agricultural busi-
3 nesses and organizations; and

4 “(F) representatives of the private sector.

5 “(5) AUTHORIZATION OF APPROPRIATIONS.—

6 There are authorized to be appropriated to carry out
7 this subsection \$5,000,000 for each of fiscal years
8 2000 through 2002.

9 “(d) PROMOTION OF AGRICULTURAL BEST PRAC-
10 TICES.—The Secretary shall promote voluntary agricul-
11 tural best practices that take into account soil organic
12 matter dynamics, carbon cycle, ecology, and soil organisms
13 that will lead to the more effective use of soil resources
14 to—

15 “(1) enhance the carbon cycle;

16 “(2) improve soil quality;

17 “(3) increase the use of renewable resources;

18 and

19 “(4) overcome unfavorable physical soil prop-
20 erties.

21 “(e) ANNUAL REPORT.—The Secretary shall submit
22 to the Committee on Agriculture of the House of Rep-
23 resentatives and the Committee on Agriculture, Nutrition,
24 and Forestry of the Senate an annual report that de-
25 scribes programs that are or will be conducted by the Sec-

1 retary, through land-grant colleges and universities, to
 2 provide to agricultural producers the results of research
 3 conducted on agricultural best practices, including the re-
 4 sults of—

5 “(1) research;

6 “(2) future research plans;

7 “(3) consultations with appropriate scientific
 8 organizations;

9 “(4) proposed extension outreach activities; and

10 “(5) findings of scientific peer review under sec-
 11 tion 103(d)(1) of the Agricultural Research, Exten-
 12 sion, and Education Reform Act of 1998 (7 U.S.C.
 13 7613(d)(1)).

14 **“SEC. 1492. CARBON CYCLE REMOTE SENSING TECH-**
 15 **NOLOGY.**

16 “(a) CARBON CYCLE REMOTE SENSING TECH-
 17 NOLOGY PROGRAM.—

18 “(1) IN GENERAL.—The Secretary, in coopera-
 19 tion with the Administrator of the National Aero-
 20 nautics and Space Administration, shall develop a
 21 carbon cycle remote sensing technology program—

22 “(A) to provide, on a near-continual basis,
 23 a real-time and comprehensive view of vegeta-
 24 tion conditions; and

1 “(B) to assess and model agricultural car-
2 bon sequestration.

3 “(2) USE OF CENTERS.—The Administrator of
4 the National Aeronautics and Space Administration
5 shall use regional earth science application centers
6 to conduct research under this section.

7 “(3) RESEARCHED AREAS.—The areas that
8 shall be the subjects of research conducted under
9 this section include—

10 “(A) the mapping of carbon-sequestering
11 land use and land cover;

12 “(B) the monitoring of changes in land
13 cover and management;

14 “(C) new systems for the remote sensing
15 of soil carbon; and

16 “(D) regional-scale carbon sequestration
17 estimation.

18 “(b) REGIONAL EARTH SCIENCE APPLICATION CEN-
19 TER.—

20 “(1) IN GENERAL.—The Secretary, in coopera-
21 tion with the Administrator of the National Aero-
22 nautics and Space Administration, shall carry out
23 this section through the Regional Earth Science Ap-
24 plication Center located at the University of Kansas
25 (referred to in this section as the ‘Center’), if the

1 Center enters into a partnership with a land-grant
2 college or university.

3 “(2) DUTIES OF CENTER.—The Center shall
4 serve as a research facility and clearinghouse for
5 satellite data, software, research, and related infor-
6 mation with respect to remote sensing research con-
7 ducted under this section.

8 “(3) USE OF CENTER.—The Secretary, in co-
9 operation with the Administrator of the National
10 Aeronautics and Space Administration, shall use the
11 Center for carrying out remote sensing research re-
12 lating to agricultural best practices.

13 “(c) AUTHORIZATION OF APPROPRIATIONS.—There
14 is authorized to be appropriated to carry out this section
15 \$5,000,000 for fiscal years 2000 through 2002.

16 **“SEC. 1493. CONSERVATION PREMIUM PAYMENTS.**

17 “In addition to payments that are made by the Sec-
18 retary to producers under conservation programs, the Sec-
19 retary may offer conservation premium payments to pro-
20 ducers that are participating in the conservation programs
21 to compensate the producers for allowing researchers to
22 scientifically analyze, and collect information with respect
23 to, agricultural best practices that are carried out by the
24 producers as part of conservation projects and activities

1 that are funded, in whole or in part, by the Federal Gov-
2 ernment.

3 **“SEC. 1494. ASSISTANCE FOR AGRICULTURAL BEST PRAC-**
4 **TICES AND NATURAL RESOURCE MANAGE-**
5 **MENT PLANS UNDER CONSERVATION PRO-**
6 **GRAMS.**

7 “(a) IN GENERAL.—In addition to assistance that is
8 provided by the Secretary to producers under conservation
9 programs, the Secretary, on request of the producers, shall
10 provide education through extension activities and tech-
11 nical and financial assistance to producers that are par-
12 ticipating in the conservation programs to assist the pro-
13 ducers in planning, designing, and installing agricultural
14 best practices and natural resource management plans es-
15 tablished under the conservation programs.

16 “(b) INFORMATION TO DEVELOPING NATIONS.—The
17 Secretary shall disseminate to developing nations informa-
18 tion on agricultural best practices and natural resource
19 management plans that—

20 “(1) provide crucial agricultural benefits for soil
21 and water quality; and

22 “(2) increase production.

1 **“SEC. 1495. CARBON CYCLE RESEARCH MONITORING SYS-**
2 **TEM.**

3 “(a) ESTABLISHMENT.—The Secretary, in conjunc-
4 tion with the Administrator of the National Oceanic and
5 Atmospheric Administration and the United States Global
6 Change Research Program, may establish a nationwide
7 carbon cycle monitoring system (referred to in this section
8 as the ‘monitoring system’) to research the flux of carbon
9 between soil, air, and water.

10 “(b) PURPOSE OF SYSTEM.—The monitoring system
11 shall focus on locating network monitors on or near agri-
12 cultural best practices that are—

13 “(1) undertaken voluntarily;

14 “(2) undertaken through a conservation pro-
15 gram of the Department of Agriculture;

16 “(3) implemented as part of a program or ac-
17 tivity of the Department of Agriculture; or

18 “(4) identified by the Administrator of the Na-
19 tional Oceanic and Atmospheric Administration.

20 “(c) MEMORANDUM OF UNDERSTANDING.—The Sec-
21 retary may enter into a memorandum of understanding
22 with the Administrator of the National Oceanic and At-
23 mospheric Administration to ensure that research goals of
24 programs established by the Federal Government related
25 to carbon monitoring are met through the monitoring sys-
26 tem.

1 “(d) AUTHORIZATION OF APPROPRIATIONS.—There
2 is authorized to be appropriated to carry out this subtitle
3 \$10,000,000.”.

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